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ABSTRACT

A study investigated the impact of a procedure called Thesis Analysis and Synthesis Key (TASK), which was embedded in a curriculum designed to help high school students read and write arguments. Subjects, 120 11th-graders in San Francisco were instructed in argumentation under 3 conditions. Their gains in the ability to read arguments were measured with adaptations of the Ennis-Weir Essay Test of Critical Thinking; their gains in the ability to write arguments were measured by holistic scores. Results indicated that in reading arguments, students who received instruction in TASK demonstrated statistically significant improvement. In writing arguments, only those students given TASK in a cooperative learning environment made significant gains in holistic scores when direct comparisons of treatments were made. However, the pre-to-post holistic scores of students in both TASK conditions showed significant gains. In both the reading and writing of arguments, low achieving readers receiving TASK made significantly greater gains than their low achieving counterparts in the control treatment, indicating that facilitators like TASK help students to improve in both the reading and writing of arguments. (Ten tables of data and a figure are included; an appendix contains the thesis analysis and synthesis key.) (Author/PRA)

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The Effects of Explicit Instruction on Critical Reading and Argumentative Writing: The TASK of Reading and Writing

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Abstract

To develop critical reading and argumentative writing skills, students need to apply appropriate reading and writing strategies. This research investigated the impact of a procedure called TASK, an acronym for Thesis Analysis and Synthesis Key, which was embedded in a curriculum designed to help high school students read and write arguments. Eleventh graders were instructed in argumentation under three conditions. Gains in the ability to read arguments were measured with adaptations of the Ennis-Weir Essay Test of Critical Thinking; gains in the ability to write arguments were measured by holistic scores. In reading arguments, students who receive instruction in TASK demonstrate statistically significant improvement. In writing arguments, only those students given TASK in a cooperative learning environment make significant gains in holistic scores when direct comparisons of treatments are made. However, the pre-to-post holistic scores of students in the both TASK conditions show significant gains. In both the reading and writing of arguments, low achieving readers receiving TASK make significantly greater gains than their low achieving counterparts in the control treatment. Findings indicate that facilitators like TASK can help students improve in both the reading and writing of arguments.

The Effects of Explicit Instruction on Critical Reading and Argumentative Writing: The TASK of Reading and Writing

The needs of our democratic enterprise and the sometimes discouraging reports on the condition of literacy in our schools (Mullis & Jenkins, 1990; Applebee, Langer, Mullis, & Jenkins, 1990), have prompted growing interest in developing the critical reading and writing abilities of students--what has become known as critical literacy. In spite of growing concern about critical literacy, evidence suggests that students in our secondary schools infrequently engage in thoughtful reading (Applebee, Langer, & Mullis, 1985, 1988; Boyer, 1983; A Nation at Risk, 1983; Adler, 1982) or extended writing (Applebee, 1986, 1981; Mullis, 1985; Mullis & Mead, 1983). What might be done to improve students' reading and writing of argumentative prose?

Research Rationale

Research suggests that students, while having numerous reading and writing strengths, could benefit from programs and strategies designed to help them to read and to write arguments more effectively.

Explicit instruction in reading.

Researchers have found that explicit instruction in reading strategies has empowered students to improve the quality of their reading. In reviewing a number of these studies, Gersten and Carnine (1986) found that students who were taught precise, step-by-step comprehension strategies, improved their understanding of texts. In particular, significant gains were found to occur in drawing inferences (Carnine, Kameenui, & Woolfson, 1982) and detecting faulty arguments (Patching, Kameenui, Gersten, & Colvin, 1983). Pearson (1987) identified and reviewed several explicit methods of teaching comprehension strategies that have been effective: inference training (Hansen & Pearson,

1983) , reciprocal teaching (Palinscar & Brown, 1984), and process training (Duffy et al., 1986; Paris, Cross, & Lipson, 1984). These methods of explicit instruction in reading strategies commonly consist of the teacher first modeling exactly what students are to do as they read, then guiding practice during which readers gradually assume more responsibility for their reading, and finally providing opportunities to apply strategies to new materials. Brown (1985) explained that reciprocal teaching provides "expert scaffolding" for novice readers to develop in a gradual way procedures commonly used by proficient critical readers who plan, monitor, apply strategies, evaluate, and revise text. Using explicitly taught strategies of summarizing, questioning, clarifying, and predicting, researchers have found that reciprocal teaching is successful not only with low ability readers but also with high school and junior college students (Bird, 1980; Day, 1980).

Whimbey (1983, 1985) has used explicit instruction with precollege and college students to cultivate critical reading, comprehension, and other thinking skills . His review of several programs--some of which focus on remedial students--indicates that explicit instruction in analytical thinking produces significant results. In one program, for example, students gained an average of two grade levels on a reading test.

Direct instruction in recognizing overall text plans also holds promise. Several researchers have found that readers who have a sense of the plans used by writers comprehend text more effectively (Anderson, 1984; Meyer, 1982; Rumelhart, 1980). Explicit instruction in plan recognition has been explored using low ability intermediate grade readers (Carnine & Kinder, 1985). However, there has been little research on whether readers of more complex argumentative prose would benefit from direct instruction in plans.

Explicit instruction in writing.

As for writing, explicit instruction has been shown to produce some significant improvements in certain features of student compositions. In an article that serves as a companion to Brown's (1985) study of reading instruction, Scardamalia (1984) has argued that the central problem in writing instruction is to move novice writers who depend upon a "knowledge telling" strategy to more expert "knowledge transforming" strategies. While narrative and personal experience writing does not produce knowledge transformation, certain forms of explicit instruction, namely procedural facilitators, can transform knowledge--and thus, through explicit instruction, guide the novice to a higher level of cognitive functioning. Procedural facilitators, which explicitly describe what expert writers do, consist of "routines" or procedures that are meant to help novices reduce the processing burden and make their problem solving more efficient. In short, they guide novice writers through processes that experts traverse.

Scardamalia and Bereiter (1985) present the results of the effects of a procedural facilitator upon the amount of reflective thought contained in the essays of sixth graders. While students in the advanced stages of planning their papers spoke aloud, sentence openers used as cues intended to facilitate that planning were given. These cues, designed to evoke a dialectical process, urged students to provide examples, challenge ideas, improve the presentation of material, and the like. Opinion essays were written by subjects who were given the procedural facilitation and by controls who did not get the facilitation. When scored and compared, the essays of students given the intervention were judged to be more reflective. However, while the experimental group did produce essays with more reflective thought, they did not produce essays that

were considered superior in overall ratings or in the quality of individual ideas. In spite of that, planning cues did promote more thoughtfulness in writing.

Like Scardamalia, Hillocks (1986a) argues that perhaps the problem students have with non-narrative writing lies with their not having the chance to learn procedures necessary for the production of standard expository forms. He says it is not unusual for teachers to instruct students in the identification of forms and parts. Students are shown essays with thesis statements and plans that develop the thesis, but neither teachers nor text books "teach students how to generate and evaluate a thesis statement, a plan, or how to select and evaluate the data to support the thesis. Students are left to do that on their own" (82). The knowledge most important to student writers is the knowledge they lack: procedural knowledge. "When curriculums begin to focus on such procedural knowledge," writes Hillocks (1987), "they will begin to produce more effective writers" (81).

To help students acquire enabling strategies, Hillocks (1983) designed and tested a method of instruction in writing that differed from the procedure commonly used in explicit instruction. Rather than having a teacher directly demonstrate a strategy, guide practice as students gradually master it, and then provide opportunities to apply the new strategy, Hillock focused upon inquiry as a means of helping students to discover and apply strategies needed for a particular form of writing, such as the writing of definitions. Furthermore, Hillocks found that providing students who work together in small groups with carefully selected, concrete scenarios or data sets as instructional materials rather than models of a particular form of writing, such as models of definition, produced greater gains in the quality of students' compositions. That mode of instruction in which a teacher provides materials, structured writing problems, and opportunity to work out solutions in small groups Hillocks calls

"environmental." In a meta-analysis comparing the inquiry focus and the environmental mode with a number of other foci and modes of instruction, Hillocks (1986b) found that the inquiry focus and the environmental mode produce greater gains in the quality of writing. Nevertheless, the key to the success of both explicit and inquiry-environment instruction appears to lie in the fact that students acquired strategies to solve writing problems.

Students work under significant disadvantages if they lack strategies or procedural knowledge that would enable them to plan, to revise, and to edit their writing. Those students, especially eleventh graders, who reported more use of planning, revising, and editing strategies performed significantly better in writing achievement as measured by the NAEP (Applebee, Langer, & Mullis, 1986).

Scardamalia (1985) argues that "explicit instruction can have a significant effect on how students write." Furthermore, she presents a challenge to researchers on writing that could apply as well to researchers on reading: "to discover teachable principles that are valid and that students can readily convert into procedural knowledge."

Combining strategic instruction in reading and writing.

Although programs using explicit instruction or the inquiry method have been designed to teach students strategic knowledge applicable to either reading or writing, programs to teach students both critical reading and writing with a single procedure to facilitate both have yet to be seen. Might improvements in both reading and writing be achievable if programs of instruction were designed to take advantage not only of the power of explicit instruction but also of the dynamic, cognitive relationships between reading and writing (Langer, 1986; Shanahan & Lomax, 1988; Stotsky, 1983)?

Furthermore, research using explicit instruction to improve critical literacy has tended to focus on particular skills, such as drawing inferences or identifying fallacies while reading and demonstrating dialectical thinking while writing, rather than a combination or package of skills needed to analyze and evaluate arguments. Could students be provided with explicit instruction in a network of related reading and writing strategies that would be applied when reading or writing argumentative prose? If developed, what would such an instructional program look like?

The research reported here is the result of an investigation of the effects of explicit instruction in the use of strategies designed to facilitate the reading and writing of argumentative essays.

Even though what might be effective strategies for the improvement of reading and writing are offered to students, students may not be sufficiently motivated to learn or to adopt them. Given the need for instruction that will guide students in the development of their ability to read and write arguments, what motivation enriching environment would most likely produce the best learning?

Because of the positive impact of small groups on reading and higher level thinking skills (Applebee, et al, 1988), because of Hillocks' (1986b) finding that structured, small group problem solving promoted better student writing, and because of the growing body of evidence supporting the efficacy of cooperative learning (Bruce, Showers, & Rolheiser-Bennett, 1987; Johnson, Maruyama, Johnson, Nelson, & Skon, 1981), the program to be evaluated was presented using two modes of instruction: a teacher-centered presentational approach and a student-centered cooperative learning approach.

Up to this time, no research program has been devised and tested that integrates related cognitive strategies and skills described in the various studies

reviewed. No program has been designed that draws upon the dynamic relationship between reading and writing, uses a procedural facilitator applicable to both reading and writing, focuses upon the development of argumentative skills, incorporates the potential motivational benefits of cooperative learning, and measures growth in critical reading, writing, and thinking. Furthermore, the program envisioned incorporates those features within an American literature curriculum that transects with issues in American history.

The Goals of the Study

Can an instructional program be designed that will teach students to read more thoughtfully and to write argumentative essays that demonstrate increased rigor and care in thinking? That is the general question that launched this study.

More specifically, the purpose of the study was to test a procedural facilitator called TASK, an acronym for Thesis Analysis and Synthesis Key, and the instructional program in which it is embedded.

The research addressed the following specific questions:

1. What effects does a procedural facilitator called TASK have on the reading of arguments?
2. What effects does a procedural facilitator called TASK have on the writing of arguments?
3. Is a traditional presentational mode of instruction as effective in the teaching and learning of the procedural facilitator as is a student-centered, cooperative learning environment?
4. If improvements in the reading and writing of arguments occur as a result of a particular form of instruction, do both high and low achieving readers benefit equally?

Hypotheses were formulated for all but the final question. For questions one and two, it was hypothesized that the TASK curriculum would improve performance on reading and writing arguments. For question three, it was hypothesized that a cooperative learning mode of instruction would be more effective in teaching students to read and write arguments with TASK than a presentational mode of instruction. For the fourth and final question, no hypothesis was formulated because of the more exploratory nature of the question.

Method

Data were gathered to test the hypothesis that the TASK curriculum as focus of instruction would bring about improvement in the reading and writing of arguments. The skill development that resulted from teaching TASK in a presentational and a cooperative learning mode was also investigated and compared. Therefore, data were also collected to test the hypothesis that mode of instruction would significantly improve learning to read and to write argumentative essays with the help of TASK.

The following diagram provides an overview of the study's design showing the three treatments, the high and low achieving readers compared, and the teachers who taught the various treatments. Teacher 1, the investigator, taught a TASK presentational, a TASK cooperative learning, and a "traditional" presentational curriculum while Teacher 2, the collaborating teacher, taught a section of the TASK presentational and the "traditional" presentational curriculum. Teacher 2, who had two English III classes but four different classes for which to prepare, taught Treatments 1 and 3 because Treatment 2, TASK in the cooperative learning mode of instruction, would have required significantly more training and preparation for which time was unavailable. Furthermore, it was believed that the more primary research

questions, those involving focus of instruction, would be addressed best in the designated design.

Diagram of Study's Design

	Treatment 1	Treatment 2	Treatment 3 (or Control Group)
	TASK in Presentational Mode	TASK in Cooperative Learning Mode	Traditional Curriculum in Presentational Mode
High/Low Achieving Eleventh Grade Readers	Pre- and Post-Testing	Pre- and Post-Testing	Pre- and Post-Testing
Teacher	Teacher 1 & 2*	Teacher 1	Teacher 1 & 2

*Teacher 1 = Researcher
Teacher 2 = Second Experienced Teacher

Subjects

The subjects for this study consisted of 120 eleventh grade students attending a San Francisco suburban community high school. The students were enrolled in English III, a mixed-ability class. Out of 122 students who received instruction as part of the study, 114 were included in the statistical analysis of argument assessment skills and 107 in the analysis of argument composition, those numbers being students who took both pre- and post-tests for a particular skill assessment.

Teachers

Both teachers of the curricula in this study were tenured teachers with several years of teaching experience. The investigator, who has taught English in high school for twenty-one years, was one of the two teachers. Knowing the issue of bias would arise because the investigator participated in teaching

treatment groups, the researcher adhered to the same lesson plans as those given to and used by the collaborating teacher. Both teachers met daily to insure that their lessons and strategies were uniform for different treatments. Since the collaborating teacher did not have time in his schedule to learn the techniques of cooperative learning nor to teach TASK to an additional class in the cooperative learning mode, care was taken by the investigator to develop lesson plans and materials that were informed by the principles of cooperative learning. Many of the cooperative learning activities implemented were modifications of cooperative learning strategies that had been used in other cooperative learning programs, such as Cooperative Integrated Reading and Composition (CIRC). Furthermore, the investigator maintained a log of field notes to document developments within learning teams as they responded to the cooperative learning program.

The collaborating teacher, who taught English and social studies for eight years, volunteered to participate in the study. Although primarily a teacher of social studies, he majored in rhetoric as an undergraduate and has a strong interest in teaching students to write effectively. His interest in jurisprudence and argumentation is reflected in his being the coach for the school's mock trial team.

Materials

Reading test. To measure subjects' reading level, the Nelson-Denny Reading Test (1981), Form E was used.

Argument assessment instruments. To obtain a base-line measurement for argument analysis and assessment skills before instruction, all subjects took either The Ennis-Weir Critical Thinking Essay Test (1985), which will be referred to as Form A, or a parallel test created for this study, Form B. Form A is called the "Moorburg Letter," and Form B, modelled after the "Moorburg Letter," is

called the "Fishbach Letter." In both forms of the test, students read an argument that was structured as an eight paragraph letter to the editor and assessed the argument paragraph by paragraph.

In their description of the Critical Thinking Essay Test, Ennis and Weir offer a "rough" list of critical thinking competences incorporated into the test. These features include the ability to get the point of an argument, to grasp reasons and assumptions, to state one's own point, to present good reasons, to see alternatives, and to react reasonably to instances of equivocation, irrelevance, overgeneralization, circularity, the use of emotive language, and more.

The "Moorburg" and the "Fishbach Letters" are complex arguments, the first about a parking proposal and the second about a proposal to make an "open" high school campus "closed." Each paragraph of both letters contained text that either contributed or failed to contribute to the support of the major claim or thesis of each letter. In the directions, students were instructed to decide if each paragraph in the argument was good or bad, strong or weak and to provide reasons for their judgment. Each paragraph required that a reader perceived the following feature:

¶ 1) recognition of misuse of analogies, shifts in word meaning, or incorrect definitions,

¶ 2) recognition of irrelevant claims or supports for an argument,

¶ 3) recognition of the soundness of an argument,

¶ 4) recognition that an argument lacks evidence or reasons or that a given claim adds nothing to the development of a larger argument,

¶ 5) recognition that alternative solutions are feasible, that solution offered may not affect problem presented, plus

additional features,

¶ 6) recognition that an experiment, whose results are used to support an argument, is poorly designed because of lack of controls, inadequate sampling, experimenter bias, or other features,

¶ 7) recognition that an incorrect definition has been stipulated to win an argument or that a word has been made useless for empirical assertions,

¶ 8) recognition of improper appeals to authority.

Besides assessing each paragraph, students are asked to write a concluding ninth paragraph in which they judge the argument overall and review it. For both letters, the expectation was for the students to judge the overall argument as weak.

The readability levels of the "Moorburg Letter" and the "Fishbach Letter" were calculated using Fry's formula and graph (1968, 1977) and found to be at the 7th grade.

Argumentative essay prompts. Argumentative essay prompts came from Educational Testing Service and were similar to those used as part of the English Composition Achievement Test (ECT).1 These essays provide a base-line measurement for argumentative writing ability. Two forms, C and D, of the writing prompts were used.

The design of the prompts included general instructions, a quotation, and an assignment. Form C stated:

"Those who receive nothing but compliments will not grow.

It is our critics who help us progress."

1Essay Test questions are reprinted by permission of Educational Testing Service, the copyright owner.

Assignment: To what extent and in what ways do you agree or disagree with this quotation? Discuss your views, providing supporting examples from your reading, study, or observation.

Form D stated:

"You don't change the world. You learn to live in it."

Assignment: To what extent and in what ways do you agree or disagree with this statement? Explain and illustrate your answer from history, literature, observation, or experience.

Instructional materials. Instructional materials for TASK were developed by the investigator and composed the TASK curriculum which was published for students in a five-chapter manual entitled The TASK of Reading and Writing Arguments.*

TASK, an acronymn for Thesis Analysis and Synthesis Key, may help students to think through the elements of an argumentative essay. The facilitator is wholly contained on an 8 1/2 by 11 inch page. (See Appendix A.) Used as part of the process of reading or writing, TASK guides students in the analysis and synthesis of thesis statements, in the construction of antithetical arguments, in the search for good reasons to support both claims and counterclaims, and in the creation of a meaningful reading or of an organized composition. TASK and its accompanying curriculum for the study of argument was developed to teach students to organize and test their claims and evidence, to view arguments from different perspectives, and to engage in a dialectical process while reading and writing. As a procedural facilitator, TASK is intended to function as a heuristic to increase the understanding of

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*For further information about the TASK curriculum, contact the author.

arguments, to improve the quality of argumentative essay writing, and to foster the development of thinking skills.

The TASK curriculum consists of five chapters that explore the meaning of "argument," the features that arguments contain, and methods by which arguments can be read and written with the help of TASK. The first chapter, "Recognizing and Creating Arguments: 'So Where's the Beef,'" not only clarifies the nature of arguments but also presents a taxonomy of claims (fact, evaluative, interpretive, policy, moral, legal, causal, etc.) that might be made about a topic and offers examples of the various types of claims. The second chapter, "Argument Analysis: The Structure of Arguments," introduces extended arguments, including inductive, deductive, and analogical patterns of argumentation. The third chapter, "Argument Analysis: Weaknesses and Strengths of Arguments," focuses on finer features of arguments, especially fallacies of relevance, ways in which to analyze arguments, and qualities that constitute effective arguments. The fourth chapter, "Argument Analysis: The TASK of Reading," explains how TASK can be used as a procedural facilitator to help readers in their analysis of arguments. The fifth chapter, "Argument Creation: The TASK of Writing," explains and demonstrates the use of TASK as a heuristic for the development of thesis statements when composing argumentative essays. The fifth chapter also discusses and gives examples of the movement between TASK and the writing of an argumentative essay.

The "traditional" curriculum was based upon The Lively Art of Writing (Payne, 1965). Drawing upon the argumentative composition theory of Baker's Practical Stylist (1962), Payne shows students how to distinguish between fact and opinion, how to form a thesis statement by "boiling down" an opinion to an arguable assertion, and how to introduce "pro and con" elements in the full essay. While building upon Baker's concept of the "argumentative wedge,"

Payne's text also shows students how to develop thesis-pointed introductions, middle sections, and conclusions to arguments. Furthermore, the text includes chapters on elements of grammar and sentence structure. However, it does not include instruction in argumentation, such as a taxonomy of claims, a presentation of various kinds of arguments, a discussion of criteria to evaluate strong and weak arguments, or a facilitator that would guide students through both the reading and writing of an argument.

Both treatment groups received auxiliary essays and articles for study and analysis. To complement students' junior year study of American history, most of these were related to the study of American culture and literature. Included were works by de Tocqueville, Jefferson, Emerson, Thoreau, and Bellah. Additional arguments for study were taken from local and national newspapers, such as The New York Times.

Procedures

Five English III classes were placed into treatments on a chance basis. As a result of a random draw, the researcher's second period class became the class to be instructed with TASK in the cooperative learning mode, his first period class became the class to be instructed with TASK in the presentational mode, and his third period class became the class to be instructed with the traditional curriculum in the presentational mode. Selection of treatments for classes taught by the collaborating teacher was guided by the need to adjust for the researcher's first period becoming a TASK presentational treatment group. To balance the random selection of one TASK presentational treatment during first period, it was decided that the collaborating teacher's first period class would become a "traditional" presentational treatment group. His second period class received the TASK presentational treatment.

As a result of the placement procedure described, the number of students in each treatment group was determined. The total number of students involved in each treatment is depicted in Table 1.

Insert Table 1 about here.

Pre-treatment testing procedures.

Before instruction in any of the treatments began, all subjects took Form E of the Nelson-Denny Reading Test (1981) to identify high and low achieving readers for later comparison. Subjects also wrote two pre-test essays, one to measure argument assessment ability (either letter A, the "Moorburg," or letter B, the "Fishbach") and the other to measure argument writing ability (either Form C or D of the ETS prompts).

Because the two forms of the letter, A and B, and the two writing prompts, C and D, differed somewhat in discourse and content, half the students in each treatment group were given the alternative forms of the letter and prompt. That split-half design was also used during post-treatment testing.

Treatment One: TASK in presentational mode of instruction.

Treatment one entailed a teacher-centered delivery of TASK as a tool for argument analysis and as a guide for the planning and writing of essays. Over a period of nine weeks, two classes of eleventh grade students, one class taught by the researcher and the other by a second experienced teacher, received instruction in the use of TASK. The method of instruction for this treatment was "presentational," that is, the teachers presented the TASK curriculum by means of lecture and teacher-student discussion, by means of models, and by means of assignments that students completed individually in

class or for homework. During the instructional time, assignments and essays were completed with the teacher or teacher's reader as audience.

During the first five weeks of the nine-week instruction period, the focus was upon the TASK of reading. The classes read chapters prepared by the researcher about the elements of argument and the use of TASK as a reading strategy. During the first three weeks, students not only learned about claims, arguments, and the structure of arguments but were also engaged in doing activities in class and for homework that clarified features of TASK as an aid to argument analysis and assessment. The teachers demonstrated and discussed the use of TASK with the entire class. Working individually, students received further instruction and practice in its use.

During the third and fourth weeks of instruction in the TASK of reading, students wrote three evaluations of arguments of an editorial type. The written evaluation, which was preceded by the completion of a TASK sheet, included a summary, analysis, and critique (SAC) of each argument.

Following instruction in the TASK of reading, students also received instruction in the TASK of writing for four additional weeks. Students were taught the use of TASK as a method for the generation of thesis statements, their examination, and support. During this period of instruction, students wrote at least three argumentative essays for which they completed a TASK. Students worked as an entire class in teacher-led discussions--but not in small groups and not cooperatively--to refine their understanding of the use of TASK as a possible writing facilitator.

Treatment Two: TASK in cooperative learning context.

For the second treatment, an eleventh grade English III class taught by the researcher was also introduced to the TASK curriculum. As in treatment one, five weeks were used to learn the TASK of reading and four weeks to learn

the TASK of writing. However, the method of instruction for the second treatment was cooperative learning in small groups. Lecture and demonstration by the teacher was kept to a minimum.

Small groups of students were given instruction in the use of TASK primarily through structured small group activities that focused upon a problem that was cooperatively solved. Each group consisted of three students: one high-achieving, one low-achieving, and one from the mid-range of achievement. Achievement criteria were based upon students' grades in English for the previous semester. Efforts were made to balance learning teams with respect to gender, motivation, and academic achievement. Students collaborated with each other as they solved problems and learned about the analysis and construction of arguments with the use of TASK. Teams were "positively interdependent" in that the performance of each team member affected the success of the entire group; for example, if all members of a group attained an established level of mastery or performance on a quiz or essay, all group members were rewarded with bonus points. Furthermore, students were provided with opportunities to discuss their efficiency as a learning team and examined ways they might improve the quality of their work together.

Several kinds of small group activities were embedded in the curriculum under this treatment, such as collaboration on completing TASK after reading an editorial about a national youth service program or collaboration on developing a TASK for an essay on one of Emerson's many claims in "Self-Reliance." Students also worked in teams to review drafts of each other's essays and to provide feedback for improvement.

Although cooperative small group processes were stressed as the mode of instruction and although students cooperated to complete individual assignments, students were still "individually accountable" for mastering the

content of the curriculum and were expected to submit homework and writing assignments individually for evaluation. However, if all members of a cooperative learning group submitted individual homework assignments, each member of that team received as a reward a predetermined number of bonus points. In another instance, if all members of a team completed homework assignments for a specified period of time, the parents of each team member received a letter from the teacher commending the student's performance.

During the four weeks when TASK as a tool for writing was taught and while students wrote arguments, the learning teams functioned as conference and peer-response groups, helping each team member to plan, transcribe, and edit papers. Teams were given explicit goals and instructions--often with worksheets for each other to complete. The teacher under this condition served as a resource person and guide for students and teams.

Students in treatment two read all of the materials provided for treatment one. The major difference was in mode of instruction which, under this treatment, encouraged the development of cooperative learning in a student-centered classroom.

Treatment Three (or Control Group): No TASK but "Traditional"curriculum for instruction in argumentation delivered in presentational mode.

The two remaining classes taught by the researcher and the second teacher received what in several schools in the District is the "traditional" curriculum for instruction in argumentation, namely that based upon Payne's The Lively Art of Writing. Students in these "traditional" classes were not instructed in the use of TASK; however, they did read essays, editorials, and selections that had an argumentative structure and that were included as supplementary reading in the other treatments. Furthermore, they wrote argumentative essays at least as frequently as--if not more frequently than--

students who received the TASK treatments. The mode of instruction under this condition was presentational or teacher-centered, as in the TASK presentational treatment.

Post-treatment Testing.

After the completion of nine weeks of instruction, students in all treatment groups, took the argument assessment test once again. If, before instruction, they took Form A, "The Moorburg Letter," following instruction they took Form B, "The Fishbach Letter." If they took form B before, they took form A following instruction.

After nine weeks, students in all treatment groups once again composed in-class analytical essays in response to an ETS prompt. Those who wrote in response to Form C in the pre-treatment test got Form D after treatment; those who had Form D before instruction took Form C. As were pre-treatment essay tests, these essays were scored holistically and analytically to determine the quality of the elements within them.

Data Preparation and Method of Analysis

Reading data: Scoring argument assessment.

Scoring the "Moorburg" and the "Fishbach Letters" required preparation of appropriate scoring guides and training of readers. To obtain the necessary readers, the investigator approached the UC, Berkeley Rhetoric Department and, from the instructors and teaching assistants who taught undergraduate rhetoric courses, selected a team of five readers. The investigator worked with one of the instructors in the Rhetoric Department to develop scoring guides and a training program for other readers.

The general guidelines for scoring and the criteria and scoring sheet that Ennis and Weir originally designed for the "Moorburg Letter" were revised to apply to the results observed in the "Moorburg" assessment essays written by

the students for pre- and post-treatment evaluation. Further revisions of the general guidelines and of the criteria and scoring sheet were made in response to expected and observed changes in particular paragraphs of the "Fishbach" assessment essays.*

As the general guidelines pointed out, scores for each of the first eight paragraphs of the "Moorburg" and "Fishbach" could range from -2 to +3. Test-takers would receive a -2 if they did not make any judgment of the argument as weak or strong, bad or good. For example, if students failed to evaluate the reasoning found in an argument but instead injected only their personal opinion about the issue, they would receive a score of -2. Test-takers received a score of -1 if they made either an incorrect judgment according to the criteria or showed bad judgment in justifying an evaluation of an argument. Scores of 0, which were rare, were given if no response was made to a paragraph. Test-takers received a score of +1 if they judged the argument correctly as good or bad according to the criteria but failed to justify their judgment with reasons. Test-takers received +2 if they judged the argument correctly and justified their evaluation semi-adequately. They received a +3 if they judged correctly and justified their argument adequately. The review of exemplars for each of these scores during the training of the readers helped them to anchor to a common standard their evaluations of test-taker responses and to clarify the meaning of terms such as "semi-adequately" and "adequately."

For the ninth paragraph, test-takers could receive scores in the range of 0 to +5. Test-takers could get +1 for each of the following reasons:

1) just condemning the overall argument,

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*For further information about the scoring of the "Moorburg" and the "Fishbach" letters, please contact the author.

2) openness to alternative perspectives or solutions to the problem or for questioning the validity of the major premise,
3) reviewing or summarizing the responses to the other paragraphs in some reasonable way,
4) noting (anywhere) that the author of the letter had used emotive language to manipulate the reader, and
5) recognizing the danger of over-generalization based on the specific information given in each form of the letter, such as recognizing in the "Fishbach Letter" the error of concluding that all vandalism is student initiated.

In scoring the nine paragraphs, readers were requested to be "conservative" in their awarding of scores and not to yield to over-interpretation or attribution of qualities or concepts to a test-taker's response if they were not present in a passage.

It is important to note that the sum of scores for each of the nine paragraphs is the only score with which the authors of the original Ennis-Weir were concerned. That total score was to be the only indicator of critical thinking ability.

To prepare for the training program, exemplars of scored responses for each of the nine paragraphs were selected and organized to serve as part of the readers' training program. Readers from the Rhetoric Department, who took the test before training, spent about two to three hours learning about the test and what it tested for, studying the general guidelines and the criteria and scoring sheet, and reading through and discussing the exemplars that had been prepared. Using the Criteria and Scoring Sheet, readers then scored examples of complete student essays for practice.

To obtain a measure of inter-rater reliability among readers, a subset of student essays was read by two readers. Of the 112 "Moorburg Letters" read, 33 were read and scored twice. Of the 112 "Fishbach Letters" read, 38 were read and scored twice. Table 2 presents the percentage of agreement between +1 and -1 for scores on each paragraph of pre- and post-argument assessment evaluations. Except for paragraph three's post percentage of agreement, these reliability scores, which ranged from 97% to 70%, are acceptable.

Insert Table 2 about here.

Writing data: Scoring argumentative essays

Pre- and post-treatment argumentative essays were read and scored using holistic scales.

Twelve readers who were high school or university teachers or instructors in the San Francisco Bay Area participated in the evaluation of the essays. All were experienced readers who had, in the past, evaluated student essays for the Educational Testing Service. Each essay written in response to an ETS prompt was read twice for holistic scoring.

Using a holistic scale developed by the trainer, two table-leaders, and the investigator (see Figure 1), two readers read each essay and gave it a holistic score from 1 (low) to 6 (high).

Insert Figure 1 about here.

Inter-rater reliability was calculated based upon percentage of agreement between +1 and -1 on the holistic pre- and post-essays. This

guideline for acceptablity is commonly applied in holistic scoring. Percentage of agreement was excellent: 96%.

Statistical Analysis

Data were analyzed using SPSSx (1986) to determine difference or gain scores on pre- and post-argument assessments and argumentative essays. The gains for treatment groups on argument assessment essays, i.e., the "Moorburg" and "Fishbach Letters," and on argumentative essays were compared using independent-samples t-tests. Differences between all TASK treatments, TASK presentational, TASK cooperative learning, and traditional presentational were compared.

Besides testing for significance of pre-to-post gains between treatment groups, independent-samples t-tests were applied to the pre- and post-treatment scores for each treatment to discover significant differences within groups for pre-to-post gain scores. Thus, t-tests were applied to pre- and post-treatment scores on the argument assessment essays and the argumentative essays for all TASK treatments, TASK presentational, TASK cooperative learning, and traditional presentational groups.

Furthermore, data were analyzed to address the following question: If improvements in the reading and writing of arguments occur as a result of a particular form of instruction, do both high and low achieving readers benefit equally? Differences in the performance of high and low achieving readers were compared across groups to determine if high or low achieving readers demonstrated gains in the ability to assess and write arguments that were different under TASK treatment conditions than under the traditional curriculum. A nonparametric test (the Mann-Whitney U test) was used to discover the possible high and low reader differences described.

Results

This section presents the effects of instruction in argumentation under three different conditions on the reading and writing of arguments. The results presented in this section will contribute information helpful in answering the research questions posed and the hypotheses proposed.

Reading Data: Assessment of Arguments

A comparison of the pre- and post-treatment assessment of argument gain scores achieved by students given different instructional programs will be presented to begin to address the research question, What effects does TASK have on the reading of arguments.

The expectation was that students instructed with TASK would improve in their abilty to assess arguments. With a greater understanding of arguments and their structure, students were expected to become more adroit in their assessment of arguments. That expectation for improvement was realized.

For each treatment group, pre and post means for total score on argument assessment of the nine paragraphs of the "Moorburg" and "Fishbach" letters were calculated, a mean difference score was computed, and a one-tailed t-test comparing the pre and post means between each group for total score on all paragraphs was computed to determine pre-to-post significance. A one-tailed t-test was used because the hypothesis stated interest in finding a difference only in one direction, namely improvement.

Comparing assessment of argument pre-to-post gain scores of students who received different treatments provides evidence that TASK instructed students improved significantly in their ability to assess arguments. Table 4 presents gain score differences between treatments: all TASK versus traditional presentational, TASK presentational versus TASK cooperative learning, TASK presentational versus traditional presentational, and TASK

cooperative learning versus traditional presentational. The results of one-tailed t-tests comparing gain scores of students from all TASK groups, TASK presentational, TASK cooperative learning, and traditional presentational groups are also given.

Insert Table 3 about here.

When comparing the gain scores of all TASK treatment students with those receiving the traditional presentational treatment, statistically significant one-tailed t-tests indicate that, for the sum of paragraphs, a difference in gain scores of +5.90 favoring the TASK trained students occurred in comparison to students receiving traditional treatment. Moreover, TASK trained students' total mean gain score was significantly stronger than that of students receiving traditional treatment ($t = 3.17$, $p < .01$).

When comparing gain scores for TASK presentational and traditional presentational as well as TASK cooperative learning and traditional presentational, results show that TASK treatments in both modes produced significantly greater gains than traditional treatments. The difference in total score gain for all paragraphs for the TASK presentational versus traditional was +6.06, while the difference in total score gain for the TASK cooperative learning versus traditional treatment was +5.64.

Thus, the expectation that treatment groups instructed in the use of TASK as a reading facilitator would improve in their ability to assess argumentative essays in comparison to a control treatment, was confirmed. Students trained with TASK in either a presentational or a cooperative learning mode of instruction improved significantly in their ability to assess an argument and to

make reasoned judgments about the strength or weakness of claims and supports in an argument.

An analysis of students' scores on the pre- and post-treatment assessment of arguments also contributes to the confirmation of TASK's effects and to a more detailed understanding of those effects.

A one-tailed t-test comparing the pre and post means within each treatment group for the sum of scores on the nine paragraphs of the "Moorburg" and "Fishbach" letters was computed to determine pre-to-post significance. A one-tailed t-test was used because the hypothesis stated interest in finding a difference only in one direction, namely improvement.

Table 4 presents the results of these computations.

Insert Table 4 about here.

For the two TASK treatment groups taken together, the mean gain score for the sum of all paragraphs pre-to-post was +6.61, significant at the .001 level.

For the TASK presentational group, the mean pre-to-post gain score for the sum of all paragraphs was +6.77, significant at the .001 level.

For TASK in the cooperative learning mode, the mean gain score for the sum of all paragraphs, +6.35 was also significant at the .001 level.

For the traditional presentational treatment group, the mean gain score for the sum of all paragraphs was +0.71. Consequently, no significant difference arose in mean gain scores on the assessment of arguments before and after subjects were given instruction in the traditional curriculum.

Results again demonstrate that treatment groups instructed in the use of TASK as a reading facilitator improved in their ability to assess argumentative essays in comparison to a control treatment. In relation to students who

received the traditional program, students instructed with TASK in either a presentational or a cooperative learning mode of instruction improved significantly in their ability to assess an argument, to make reasoned judgments about the strength or weakness of claims and supports in an argument.

More specifically, students instructed with the TASK curriculum improve significantly in their ability to recognize the misuse of analogy, to recognize when assertions are irrelevant to an argument, when an argument is satisfactory, when no reason is given to support a claim, and when an improper appeal to authority is made or when more information about that authority or the authority's claims are needed. Furthermore, they improved in their ability to summarize an extended argument and to judge it correctly.

Writing Data: Holistic Scores on Argumentative Essays

The results of the holistic scoring of students' argumentative essays provide information applicable to the research question raised about the effects of TASK on written arguments.

The expectation was that in comparison to a control group, treatment groups receiving TASK would improve the quality of their written arguments in a number of specific ways that were reflected in the holistic scoring guide. These expected improvements included greater sophistication of thesis statement, more supports that were also more elaborated, greater consideration for counter-arguments, greater coherence and better planning, and a greater sense of critical, reflective thinking being present in the argument. These expectations were, in part, realized--as the results show.

First are between-treatment pre-to-post gains. (See Table 5.)

Insert Table 5 about here.

In comparing treatments, only the difference score (+0.57) resulting from a comparison of TASK taught in the cooperative learning mode and the traditional curriculum was large enough to be statistically significant ($t = 1.71$, $p < .05$). The gains made by students who learned TASK in the presentational mode were not large enough to be significant in comparison to students treated with the traditional curriculum. Thus, according to holistic measures, only TASK taught with cooperative learning strategies resulted in significantly greater gains compared to traditional treatments.

Furthermore, comparing TASK presentational with TASK cooperative learning reveals a difference of -0.46 for the holistic scores, suggesting that students in the TASK cooperative learning group may improve more when readers read for a general impression of an argument than those in the presentational groups but not significantly so. Even though students who receive TASK in a cooperative learning environment do not show significantly greater improvement in the writing of argumentative essays than those who receive TASK in a teacher-centered environment, the cooperative learning TASK group significantly outperforms the traditional non-TASK group.

Next, within-group pre-to-post gains will be treated to provide detail and further information about the effects of TASK instruction on the writing of arguments. (See Table 6.)

Insert Table 6 about here.

The holistic pre-to-post mean gain score for combined TASK treatments was +0.58, significant at the .001 level.

Separately, TASK presentational and cooperative learning modes of instruction produced gains in holistic scores of +0.42 and +0.88, respectively. Furthermore, the gains for each treatment were significant, at the .05 level for presentational and at the .01 level for cooperative learning.

However, the holistic gain score for the traditional presentational treatment (+ 0.31) was not significant.

In sum, instruction in TASK as an adjunct to essay writing, whether in a presentational or a cooperative learning mode, produced significant gains in the holistic reading scores of argumentative essays whereas the traditional treatment did not produce a significant gain. But, compared to the traditional curriculum, only the TASK curriculum taught in a cooperative learning mode produced a gain in holistic measures that was large enough to be significant.

Data on Cooperative Learning vs. Presentational Modes of Instruction

The third research question focused on the effects of cooperative learning. The question asked if a traditional presentational mode of instruction would be as effective in the teaching and learning of the procedural facilitator as would be a student-centered, cooperative learning environment. The expectation was that students instructed with TASK in a cooperative learning mode would demonstrate a greater ability to identify and assess the strengths and weakness in arguments and a greater abilitity to write strong, convincing arguments.

The expectation that students who learned TASK in a cooperative learning mode of instruction would be more effective evaluators of arguments than students who learned TASK in a presentational mode was not confirmed. In comparing the gain scores of the students taught TASK in the cooperative learning and in the presentational treatment (see Table 3), no significant

differences arose in the total score for all paragraphs. The total difference in gain scores for all paragraphs was +0.42, a difference that was not significant.

Reading and Writing Data: High and Low Achieving Readers on Argument Assessment and Argumentative Essays

Next to be addressed is the a corollary question to the first three research questions: If improvements in the reading and writing of arguments occur as a result of a particular form of instruction, do both high and low achieving readers benefit equally?

First, the total comprehension scores that students achieved on the Nelson-Denny Reading Test were used to categorize high and low achieving readers. For the total comprehension score on the reading test which was taken before treatment began, the median percentile score was 75.5%. Students scoring above 75.5% were placed in the high achieving readers' category while students scoring 75.5% or less were placed in the low achieving category. Table 7 presents the number of students in each category.

Insert Table 7 about here.

The mean gain scores for high and low achieving readers, using their scores for all paragraphs on the argument assessment test and their holistic scores on argumentative essays, are given in Table 8. Important to note is that, while low achieving readers who learned the TASK program usually improved in what will be shown to be significant ways, high achieving readers who

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Insert Table 8 about here.

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learned TASK also improved--but in less than significant ways.

Table 9 presents the results of comparing argument assessment gain scores for high and low achieving readers in different treatment groups using the Mann-Whitney U Test. Two-tailed probability values were used because a direction for change was not clearly stated as an hypothesis. When pre-to-post gains of argument assessment measures for high achieving readers from different treatment groups are ranked and compared, statistically significant improvement is not demonstrated.

Insert Table 9 about here.

However, when pre-to-post gains of argument assessment scores for low achieving readers from different treatment groups were ranked and compared, those low achieving readers in TASK treatment groups improved significantly while those in the traditional treatment group revealed no significant gain. Comparing low achieving readers in all TASK treatment groups with those receiving the traditional curriculum reveals that low achieving readers from the TASK treatments had a sum of paragraphs score that was significantly in favor of TASK treatments ($z = -3.16$, $p < .01$).

A similar picture for low achieving readers developed from a comparison of TASK presentational with the traditional treatment. The sum of paragraphs score significantly favored the TASK treatment ($z = -2.58$, $p < .01$).

Finally, those low achieving readers who received the TASK cooperative learning treatment achieved significantly higher scores than low achieving readers in the traditional presentational groups on the sum of paragraphs score ($z = -2.71$, $p < .01$).

Comparing argumentative essay gain scores for high and low achieving readers across treatments revealed (Table 10) a similar picture--with some distinct differences--to that shown in the argument assessment comparisons.

As was the case when comparing the results of argument assessment gain scores of students with high reading achievement across groups, a comparison of argumentative essay gain scores for high achieving readers across treatments reveals no significant differences in gains for any treatment comparison on the Mann-Whitney U Test.

Insert Table 10 about here.

However, when comparing low achieving readers from different groups, significant gains made by students receiving certain treatments do emerge. In particular, the mean gain scores on argumentative essays for low achieving readers who received the TASK cooperative learning treatment were significantly higher than those of low achieving readers who received the TASK presentational treatment on the holistic measure ($z = -2.46$, $p < .05$).

Although the holistic mean gain for low achieving readers receiving the TASK cooperative learning treatment compared to those getting the traditional treatment was not significantly larger, it approached significance ($z = -1.74$, $p = .08$).

Conclusions and Discussion

With regard to the first question (What effects does a procedural facilitator called TASK have on the reading of arguments?), in a direct comparison between treatments, students who received instruction in TASK, as it is embedded in a curriculum, were more skilled in detecting the strengths and weaknesses of an argument than were those students who receive the

traditional curriculum even though both the TASK and the traditional curricula included essentially the same reading materials. In each comparison between TASK and traditional treatments, TASK groups achieved significant gains in total score for all paragraphs assessed.

An analysis of pre-to-post measures of gain within each treatment provided further confirmation of TASK's effect on argument assessment skills. Only TASK treatment groups made gains in the total score for all paragraphs that were statistically significant.

With regard to the second question (What effects does a procedural facilitator called TASK have on the writing of arguments?), in direct comparison to the traditionally trained group, only the group given instruction in TASK in a cooperative learning mode had holistic score gains that were significantly greater.

However, as measured by within-group pre-to-post holistic gain scores, the argumentative writing of students who received the TASK curriculum in either mode of instruction improved significantly whereas the students who received the traditional program did not gain significantly in pre-to-post holistic measures.

Thus, there is little doubt that TASK treatment, especially when delivered in a cooperative learning context, resulted in improvements in overall general impression (holistic measures) of argumentative essays.

With regard to the third question (Is a traditional presentational mode of instruction as effective in the teaching and learning of the procedural facilitator as is a student-centered, cooperative learning environment?), students who learned TASK in a cooperative learning context did not demonstrate greater gains in the capacity to assess arguments than those instructed in a presentational mode. With respect to the reading and assessment of

arguments, TASK treatment in a presentational mode of instruction was at least as effective in teaching students as it was in the cooperative learning mode.

However, students who learned TASK in a cooperative learning context did, in part, display greater gains in the quality of their written arguments than those who learned TASK in a presentational mode. With respect to the writing of arguments, TASK in the cooperative learning mode produced a larger pre-to-post gain score than TASK in a presentational mode, but the greater gain for the cooperative learning group was not statistically significant. When statistically comparing holistic score gains of the TASK cooperative learning group with the TASK presentational group, no significant difference in gain resulted.

With respect to the fourth question (If improvements in the reading and writing of arguments occur as a result of a particular form of instruction, do both high and low achieving readers benefit equally?), the analysis revealed that for argument assessment high achieving readers did not gain significantly more as a result of a particular treatment when those treatments were directly compared. However, low achieving readers benefitted significantly from the TASK treatments. Low achieving readers who received either TASK presentational or cooperative learning instruction had mean gains on the total score of all paragraphs that were significantly stronger than those receiving the traditional treatment.

For the writing of arguments, analysis revealed that high achieving readers did not benefit more from one treatment than from another--perhaps because of a "ceiling effect," that is, they were already writing effectively and had little room for significant growth in gain scores. However, low achieving readers benefited significantly more if they received TASK in the cooperative learning mode--not only in comparison to the traditional presentational but also in comparison to the TASK treatment in a presentational mode. In comparisons

between students who got the cooperative learning mode and the presentational mode, low achieving readers who got TASK in a cooperative learning framework had gains that were significantly higher on holistic measures.

The results of this study suggest that explicit instruction with a facilitator designed to guide students in their reading and writing of arugments can affect significant gains in the competence of students to evaluate and to write arguments. TASK, the Thesis Analysis and Synthesis Key, appeared to enable students to improve in their ability to detect the strengths and weakness of arguments they read. Furthermore, TASK contributed to the ability of students to write arguments. That contribution to improvements in written arguments was particularly pronounced when TASK was delivered in a cooperative learning environment.

Implications for Practice and Research

While the great majority of the students who participated in this study were college-bound, its results indicate that many high school students--especially those who are lower performing readers--can significantly improve their ability to read and to write arguments in a moderate amount of time, perhaps eight to ten weeks, with an instructional program similar to the TASK curriculum. Furthermore, since the average reading achievement of students in this study was equivalent to that of average students already well into their first years of college, a program of explicit instruction in the reading and writing of arguments with a facilitator, such as TASK, would probably enhance the critical literacy of students--especially underprepared students--in their first year of college. To reach the goals of improving students' ability to reason about what they read, to develop reasoned, reflective, and coherent arguments, and to think

more critically about what they both read and write, the implementation of programs like the one in this study would seem justified and advisable.

Furthermore, since the TASK curriculum when presented in a cooperative learning mode was found to improve the ability of students to assess arguments at least as well as it did when presented in the presentational mode and to improve the writing of argumentative prose a bit more, teaching TASK or a curriculum like it in a cooperative learning mode would seem to be advantageous.

TASK as a guide to facilitate the reading and writing of arguments could be adapted for use in different kinds of curricula. With the growth of interest in writing across the curriculum, strategies like TASK may be useful in a number of disciplines that require students to think and write analytically, such as the social studies. Regardless of subject matter, the use of TASK may encourage more teachers to engage in an exploration of alternative views of issues and to enable students to value and fairly assess alternative perspectives, solutions, and opinions.

Besides the immediate implications for teaching, the results of this study have implications for research across reading, writing, critical thinking, and classroom management for achievement motivation.

This study encroaches upon the issue of empowering lower achieving students through direct instruction in reading and writing "skills." Although it must be kept in mind that "lower achieving readers" for this study are those scoring below 75.5% on the Nelson-Denny Reading Test, the results indicate that lower achieving readers who have gone through TASK training--whether in a presentational or a cooperative learning mode--assess arguments significantly better than students who were trained in a traditional or control curriculum. In addition, lower achieving readers who have gone through TASK

training in a cooperative learning mode write better arguments than either students trained in TASK in the presentational mode or those trained in the traditional curriculum.

Delpit (1987, 1988), an educator concerned with the education of "at-risk" black students, has questioned the usefulness of "process approaches" to the teaching of writing with minorities and peoples of color. She criticizes the emphasis upon "fluency" that she finds to be typical of writing-process projects and laments their scoffing of "skills." By skills she means "useful and usable knowledge which contributes to a student's ability to communicate effectively in standard, generally acceptable literary forms" (1987, p. 13). Skills, she believes, need to be taught "within the context of critical and creative thinking" if minorities are to acquire the knowledge and power they need to progress. The goal of finding one's voice, a goal set by writing-project trained progressive white teachers, is seen as less essential to that progress.

Although a limiting perspective, TASK can be seen as a set of skill-based reading and writing strategies that is nested in a process-oriented curriculum that emphasizes critical thinking. It is not intended to increase fluency or to help students find their "voice" but to enhance reasoned reflection upon what is read and written.

However, to conclude from the research reported here that programs like TASK will help to empower all lower achieving readers, minorities, or peoples of color would be dangerous. A more prudent conclusion would be that further investigations ought to be designed to discovery the power of programs like TASK--especially those delivered in a cooperative learning mode--to provide gains in the reading and writing of argumentative or persuasive prose.

The teaching of critical thinking has spread across the United States in the past decade. While some states have adopted "critical thinking"

requirements that students must fulfil in order to graduate from their colleges, elementary and secondary school teachers and administrators have attempted to alter curricula and instruction in response to the "critical thinking movement." However, many issues of the "movement" remain unsettled. This study dealt with several of them.

One of the primary issues frequently discussed among researchers is that of measuring growth in critical thinking skills (Nickerson, 1989). No matter what kind of program in critical thinking is implemented, its testing requires some instrument for measurement. However, few satisfactory tests have been devised.

For this study, an expansion of The Ennis-Weir Critical Thinking Essay Test (1985) measured improvement in the ability of students to read and to assess arguments. Essay tests reveal the quality of thinking that test-takers undergo as they judge arguments and explain their reasons for making the judgments they make. However, instruments like the "Ennis-Weir" have problems that further research ought to address.

Alternate forms of a test enable researchers who are evaluating the effects of a treatment program to reduce confounding of results that could occur because of carry over learning if only one form is available. Since only one form of the "Ennis-Weir," the "Fishbach Letter," exists, the investigator developed an alternative form as an instrument to measure growth in critical thinking, but its reliability and validity as an alternate form need to be investigated and determined. However, even the validity of the original "Ennis-Weir" remains problematic. Do the "Moorburg" and "Fishbach" letters measure the ability to read, to analyze, to evaluate, and to construct arguments with reason and reflection? And, if they do measure what they claim to measure, do they measure it consistently? This study could not answer those question;

however, the study does underscore the need for valid and reliable instruments that measure critical thinking and its development.

The TASK curriculum delivered in a cooperative learning mode of instruction was found to have several significant benefits over TASK presented in a teacher-centered mode. However, only one class taught by the investigator was based on cooperative learning principles. Obviously, further research using more teachers presenting TASK to a larger number of classes in a cooperative learning environment is needed.

While there is little doubt that teachers create the contexts for learning to read, write, and think (Britton, 1987; Cazden, 1988; Tierney, Caplan, Ehri, Healy, & Hurdlow, 1989), methods of instruction can make teachers more effective in their classroom communities. To this writer's knowledge, no study--prior to this one--had been done of a heuristic that could be used to facilitate both the reading and writing of arguments--nor had a study of the effects of team learning on the acquisition of such a heuristic been done.

This research represents a step toward demonstrating that explicit instruction with devices like TASK are helpful to students as they think about the structure and quality of arguments and as they read and compose argumentative texts.

Complex issues that affect our society and its government, our institutions and our jobs, our families and our individual lives will not diminish in the years to come. Democracies work best with citizens empowered with the skills to reason about those issues, to see their complexity, and to assess contradictory viewpoints about them. Educators, who address the educational needs of complex democracies, face a Herculean task of teaching students to read reflectively, to write reasonably, and to think thoroughly. In some ways, TASK may assist in that great task.

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Appendix A
TASK
(Thesis Analysis and Synthesis Key)

TASK

Name_____ Per._____ Date_____

Author/Title_____

1. What topic is being judged?

2. What basic claim (B) is made about that topic?

3. Antithesis (A): What would a reader most likely be for or against if he were opposed to the writer's claim about the topic?

4. What supports the basic claim and the antithetical claim?

Basic Thesis Supports	Antithesis Supports
C.	A.
C.	A.
C.	A.
C.	A.
C.	A.

5. Are any unclear, complex, or "loaded" words in the piece? (If so, identify and clarify them.) [Use other side of TASK, if needed for routines 5, 6, an 7.]

6. Evaluate supports for both thesis and antithesis. Identify any questionable inferences, irrelevant supports, fallacies, or other weaknesses in arguments.

7. If you recognize any assumptions, values, or ideological influences in the basic thesis or its supports, what are they? Do any of them shake the validity of the claim?

8. State the full thesis in the following form: "Although A (the antithesis or one of its strongest supports), B (the basic claim) because C (a major cause for belief in the basic claim)."

9. Is the full thesis debatable yet supportable beyond a reasonable doubt, unsupportable, or too complex to support?

10. If needed, revise original claim and repeat TASK.

Table 1. Number of subjects in each treatment type.

All TASK	TASK Presentational	TASK Cooperative Learning	Traditional Presentational
78	51	27	44

Table 2. Argument Assessment Scoring Reliability. Percentage of Agreement Between +1 or - 1 for Each Paragraph.

Features Assessed in Paragraphs	Percentage of Agreement Pre (N = 33)	Post (N = 38)
¶ 1 Recognition of misuse of analogy, shift in meaning, incorrect definition, lack of evidence.	85	84
¶ 2 Recognition of irrelevance.	97	92
¶ 3 Recognition that argument is okay	94	68
¶ 4 Recognition that no reason is given or that nothing is added to argument.	76	79
¶ 5 Mixed.	70	84
¶ 6 Recognition of lack of controls, inadequate sampling, experimenter bias, etc.	88	97
¶ 7 Recognition of winning argument by definition, of incorrect definition, or of making word useless for empirical assertion.	85	79
¶ 8 Recognition of an improper appeal to authority, that more information is needed.	91	82
¶ 9 Correct judgment about overall argument, summary of argument, and other features.	88	82

Figure 1.

Guidelines for Holistic Scoring of Argumentative Papers:

6 The paper develops a position with a precise thesis and may develop a counter-argument. Relevant, concrete supports of various kinds are used to support the thesis with superior effectiveness. The paper has a clear plan and outstanding coherence. The overall argument, which reflects a driving commitment, is exceptionally well-crafted and convincing. Purpose resonates throughout. Although mechanics (sentence structure, punctuation, word choice and usage, spelling) may not be flawless, they do not detract from clear communication.

5 The paper develops a position with a clear thesis and may introduce a counter-argument. Evidence is specific and more than adequately supports the thesis. The paper's design is apparent; coherence is impressive; a sense of purpose is strong, defined. The overall argument is persuasive. Mechanics may at times detract from the paper's quality but not significantly.

4 The paper articulates a position with less clarity than a 5. It may or may not introduce counter-arguments. Though adequate, supports are fewer and tend to be simplistic or lacking in concreteness. However, sense of direction is evident. The overall argument is adequate. The paper reflects a moderate sense of purpose. For the most part, mechanics may detract more than a 5 but do not interfere with understanding.

3 The paper takes or suggests a position but may not provide consistent support, which may be lacking or vague. Counter-arguments may or may not be introduced. Development is marginal; a plan or direction for development, while not clear, is inchoate. The overall argument is less than satisfying. A weak--perhaps incipient--sense of purpose can be found. Sentence structure may lack variety. Other mechanical features may interfere with understanding.

2 The paper suggests or may present a position. However, the position is either weakly sustained with one or two supports or not sustained at all. Some supports may seem irrelevant. Paper may have structure, but purpose is unfocused or in disarray. The argument falters or collapses. Weak mechanics may be distracting. Faulty diction and/or syntax may make following the argument difficult.

1 The paper lacks a position or, after adopting one, changes it as the paper evolves. Presentation of supports rambles, and development is too minimal to follow. Paper appears to be illogical or fragmented. No significant purpose drives the essay. Weak mechanics may contribute to difficulty of reading.

Table 3. Assessment of Argument Comparisons of Differences in Pre to Post Mean Gain Scores for All TASK groups, TASK Presentational, TASK Cooperative Learning, and Traditional Presentational Groups.

	Treatments Compared			
	All TASK vs. Trad. Pres.	TASK Pres. vs. TASK . Coop.	TASK Pres. vs. Trad. Pres.	TASK Coop. vs. Trad. Pres.
Total Pre to Post Mean Gain Score on All Nine Paragraphs	+5.90	+0.42	+6.06	+5.64
	t (110) = 3.17*	ns	t (84) = 2.67*	t (66) = 2.65*

One-tailed values: * $p < .01$

Table 4. Assessment of Argument Means and Significance of Pre to Post Gain Scores for all TASK, TASK Presentational, TASK Cooperative Learning, and Traditional Presentational Groups.

	Mean Gain Scores			
	TASK Present. and Coop. Learn.	TASK Presentational	TASK Cooperative Learning	Traditional Presentational
	(N = 70)	(N = 44)	(N = 26)	(N = 42)
Total Pre to Post Mean Gain Score on All Nine Paragraphs	+6.61	+6.77	+6.35	+0.71
	t (69) = 5.06*	t (43) = 3.66*	t (25) = 3.82*	ns

One-tailed values: * $p < .001$

Table 5. Argumentative Essay Comparisons of Difference in Pre to Post Holistic Gain Scores for All TASK, TASK Presentational, TASK Cooperative Lerning, and Traditional Presentational Groups.

	Treatments Compared			
	All TASK vs. Trad. Pres.	TASK Pres. vs. TASK Coop.	TASK Pres. vs. Trad. Pres.	TASK Coop. vs. Trad. Pres.
Holistic	+0.27	-0.46	+0.11	+0.57
	ns	ns	ns	t (61) = 1.71*

* $p < .05$

Table 6. Argumentative Essay Means and Significance of Pre to Post Gain Scores for All TASK, TASK Presentational, TASK Cooperative Learning, and Traditional Presentational Groups.

	Mean Gain Scores			
	TASK Present. & Coop. Learn.	TASK Presentational	TASK Cooperative Learning	Traditional Presentational
	(N = 66)	(N = 42)	(N = 24)	(N = 39)
Holistic	+0.58	+0.42	+0.88	+0.31
	t (65) = 3.41***	t (41) = 1.92*	t (23) = 3.23**	ns

One-tailed values:

* $p < .05$

** $p < .01$

*** $p < .001$

Table 7. Number of High and Low Achieving Readers in Treatment Groups Included for Argument Assessment and Argumenative Essay Evaluation.

Treatment	High Achieving (Above 75.5%)	Low Achieving (75.5% or Less)
Argument Assessment		
All TASK	36	31
TASK Presentational	29	12
TASK Cooperative Learning	7	19
Traditional Presentational	18	22
Argumentative Essay		
All TASK	34	33
TASK Presentational	27	14
TASK Cooperative Learning	7	19
Traditional Presentational	19	20

Table 8. Mean Gain Scores for High and Low Achieving Readers on Argument Assessment (score for all paragraphs) and on Argumentative Essays (holistic score) .

	TASK Present. and Coop. Learn.		TASK Presentational		TASK Cooperative Learning		Traditional Presentational	
	Mean Gain Scores on Argument Assessment							
	High (N=36)	Low (N=31)	High (N=29)	Low (N=12)	High (N=7)	Low (N=19)	High (N=18)	Low (N=22)
Score for all Paragraphs	+5.81	+8.21	+6.62	+9.58	+5.00	+6.84	+3.83	-1.18
	Mean Gain Scores on Argumentative Essays							
	High (N=34)	Low (N=33)	High (N=27)	Low (N=14)	High (N=7)	Low (N=19)	High (N=19)	Low (N=20)
Holistic score	+0.63	+0.36	+0.69	-0.43	+0.57	+0.79	+0.58	+0.15

Table 9. Comparisons of Argument Assessment Gain Scores for High and Low Achieving Readers Across Groups Using the Mann-Whitney U Test.

(Median Percentile Score on Nelson-Denny for All Treatment Groups = 75.5%)

	All TASK vs. Trad. Pres.	TASK Pres. vs. TASK Coop.	TASK Pres. vs. Trad. Pres.	TASK Coop. vs. Trad. Pres.
		High Achieving Readers (Above 75.5%)		
High Ns	(36/18)	(29/7)	(29/18)	(7/18)
Total Score of All Paragraphs	ns	ns	ns	ns
		Low Achieving Readers (75.5% or Less)		
Low Ns	(31/22)	(12/19)	(12/22)	(19/22)
Total Score of All Paragraphs	z = -3.16*	ns	z = -2.58*	z = -2.71*

Two-tailed values:

* $p < .01$

Table 10. Comparisons of Argumentative Essay Gain Scores for High and Low Achieving Readers Across Groups Using the Mann-Whitney U Test.

(Median Percentile Score on Nelson-Denny for All Treatment Groups = 75.5%)

	All TASK vs. Trad. Pres.	TASK Pres. vs. TASK Coop.	TASK Pres. vs. Trad. Pres.	TASK Coop. vs. Trad. Pres.
		High Achieving Readers (Avove 75.5%)		
High Ns	(34/19)	(27/7)	(27/19)	(7/19)
Holistic	ns	ns	ns	ns
		Low Achieving Readers (75.5% or Less)		
Low Ns	(33/20)	(14/19)	(14/20)	(19/20)
Holistic	ns	z = -2.46*	ns	ns

Two-tailed values:

* $p < .01$